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RAT-PROOFING ORDINANCE HELD VALID.

THE NEW ORLEANS ORDINANCE REQUIRING RAT PROOFING OF ALL STRUCTURES IN THE CITY HELD BY THE COURT TO BE VALID.

The Supreme Court of Louisiana has upheld the rat-proofing ordinance adopted by the commission council of the city of New Orleans in June, 1915. This ordinance requires the rat proofing of all structures in the city, and makes it unlawful to construct or maintain any structure which is not rat proofed as provided by the ordinance.

This ordinance was adopted to replace a similar ordinance which had been held by the court to be "unreasonable in not providing for notice to property owners and in delegating certain powers to the health officer of such nature as to enable him to discriminate between individuals as to work to be done and materials to be used."

Two opinions in which the later ordinance is considered are published in this issue of the Public Health Reports, pages 1437 and 1441.

PUBLIC HEALTH ADMINISTRATION IN FLORIDA.

By CARROLL FOX, Surgeon, United States Public Health Service.

The following report gives the results of a study of public health organization and administration in the State of Florida carried on throughout a period of approximately three months, beginning November 29, 1915.

Florida has a gross area of 58,666 square miles. It forms a large peninsula, having the Atlantic Ocean on the east and the Gulf of Mexico on the west, and has therefore a long coast line with several important seaports having communication with other States and with foreign countries.

The mild, or even warm, winters of the State and its semitropical environment offer a great attraction, not only to permanent settlers, but to tourists and invalids seeking relief from the cold winters of the North.

The principal products of the State are naval stores, lumber, phosphate, citrus and other fruits, garden stuff, cotton, tobacco, and sponges.

Manufacturing is of less importance, except for the manufacture of cigars, which forms a large industry in Tampa and Key West.

Dairying and cattle raising are carried on to some extent.

The population of the State according to the State census of 1915 is 921,569;¹ the Negro race forms approximately 40 per cent of that number, and for this reason the problems in sanitation become more difficult to solve.

In the course of this study the following-named cities were visited: Jacksonville, Tampa, Pensacola, Miami, Key West, St. Augustine, and Tallahassee.

For information and assistance received in the preparation of this report the writer is indebted to the State health officer and his subordinates, and to other State and local officials.

STATE BOARD OF HEALTH.

The constitution of the State of Florida, adopted in 1885, provides for the establishment of a State board of health, and of county boards of health. It further specifies that, "The State board of health shall have supervision of all matters relating to public health, with such duties, powers, and responsibilities as may be prescribed by law;" and that, "The county boards of health shall have such powers, and be under the supervision of the State board of health to such extent as the legislature may prescribe."

Under this authority there was established by the legislature in 1889, a State board of health, and laws were enacted giving it certain powers and duties. This step was taken at the time mainly because of the fear of yellow fever, a disease having produced such widespread havoc that, in the opinion of the people, its importance overshadowed all other diseases. The laws passed at the time, and in fact, several passed subsequently, were enacted without an understanding of the way in which the disease is transmitted, and are now antiquated, requiring unnecessary procedures and frequently referring to "noisome odors" and "noxious gases," which were supposed to play a part in the propagation of the disease. Two other diseases likewise feared by the people were mentioned in the early law, viz, cholera and smallpox.

Attempts have been made from time to time, with more or less success, to bring the laws up to date.

Appointment and tenure of office.—The State board of health is required to be composed of three "discreet" citizens of the State appointed by the governor and confirmed by the senate. Each member holds office for four years and until his successor is appointed and qualified.

¹ In computing statistics the estimated population figures of the United States Census Bureau were used in the case of the four cities in the registration area; for the other cities and for the State as a whole, State census figures have been used.

Meetings.—The board meets on the second Tuesday of February each year. Either the governor of the State, or the president of the board, is given authority to call a meeting at any time and at such place as he may designate. At the first meeting of the board a president must be elected from among its members.

Salary and expenses.—The members of the State board of health receive a per diem of \$6 for each day of actual session, and mileage at the rate of 10 cents per mile.

Powers and duties of the board.—The powers and duties of the State board of health are: To exercise a general supervision over the public health of the State; to prevent the importation and spread of hydrophobia; to authorize the institution or operation of quarantine within the State and to modify or abrogate it; to impose upon railroads and navigation companies or individuals owning or operating steamships or other vessels, such restrictions and regulations providing for inspection, quarantine, and sanitary rules as may be necessary to protect the health of the people of the State.

In addition, the State board of health is empowered to make, adopt, promulgate, and enforce rules and regulations to preserve the public health of the State; for the sanitation and disinfection of vehicles of common carriers, convict camps, prisons, jails, factories, hotels, schools, and other places used by or open to the public; for the treatment, segregation, and disinfection of animals having communicable diseases; to prevent the spread of rabies; to care for segregation and isolate persons having communicable disease; for the disposition of garbage or sewage, or other refuse in or near an incorporated or unincorporated community; for the investigation and study of cases of disease or epidemics, and the means of prevention; for the dissemination of public health information; and for the supervision and regulation of municipal and county sanitation.

For violation of any regulation made by the State board of health there is provided a fine of not to exceed \$1,000, or imprisonment for not to exceed one month.

The entire composition of the board of health may be changed with each change of governors, a system whereby men who have gained experience are liable to be supplanted by men lacking that qualification, and one that is not conducive to a successful fight against disease. There is likewise a possibility that politics may creep in, producing a very unfortunate situation and one to be shunned by all health departments. It would seem best to increase the number of members of the board of health to seven, one member only to be appointed each year, and the term of service to be five years.

It is to be understood that while the suggestion has been made in this, as well as in other reports, that the controlling board be continued with certain necessary changes, the writer does not consider

it ideal, but one rather of expediency or policy. The ideal system is undoubtedly that contemplating a one-man control with an advisory board.

Notwithstanding that the State board of health is carrying on with great credit many of the activities required of such a board, the organization of the work is rather incomplete. There are four divisions, viz, executive division, laboratory division, division of vital statistics, and the veterinary division. The executive division presided over by the State health officer, includes a number of activities which should be segregated and placed under a separate head, or bureau chief.

The Executive Division.

The executive division is under the immediate control of the State health officer, who has as his assistants a medical officer known as an assistant to the State health officer, and a clerical force.

The personnel of this division and their respective salaries are at present as follows:

State health officer.....	\$3,000
Assistant to the State health officer.....	2,000
Chief clerk.....	1,500
Auditor.....	1,500
1 stenographer.....	1,200
1 stenographer.....	720
1 stenographer ¹	600
1 filing and mailing clerk.....	720
1 office boy.....	240
1 janitor.....	600
1 gardener.....	390
	<hr/> 12,470

State health officer—Appointment and qualifications.—The State health officer is appointed by the State board of health. He must be a physician graduated from a recognized medical school, an expert in the diagnosis of yellow fever, smallpox, cholera, and other infectious diseases, and skilled in hygienic and sanitary science.

Term of office and salary.—He holds his office for a term of four years and until his successor is appointed and qualified. His salary is \$3,000 per annum, and he is entitled to actual and necessary expenses when traveling on official business.

Powers and duties.—The State health officer is empowered to act as executive officer and secretary of the State board of health. In this capacity he is responsible for the enforcement of all laws with the administration of which the State board of health has been charged by the legislature. He is required personally to investigate reported

¹ Detailed for duty with the president of the board of health.

cases of yellow fever, smallpox, cholera, and hydrophobia. In the case of the latter, one of his agents may carry on the investigation and take the necessary steps to prevent the spread of the disease, and may call upon sheriffs and police officers in the city to assist in the enforcement of regulations. The State health officer is given a general control over all intrastate quarantine systems. He is authorized to abate nuisances. In addition, there are certain duties imposed upon him by the early law which are now antiquated and need not be mentioned.

The State health officer of Florida is a full-time health officer and has acted in that capacity since the establishment of the State board of health in 1889. He is, therefore, a man of long and extensive experience in public health work.

Assistant to the State health officer.—A law provides that there shall be employed an assistant State health officer to receive a per diem of \$15 a day and mileage, for each day that he is engaged in active service. The activities of the State board of health are now so extensive that the assistant as contemplated under this act would have to be employed every day, which would prove an expensive procedure. In lieu of this a medical officer from the field has been detailed as assistant to the State health officer. His duties are virtually those of an assistant executive officer, relieving the State health officer of certain duties in connection with the correspondence, supervision of the different activities of the State board of health and the performance of a certain amount of field work.

Attorney for the State board of health.—The attorney of the State board of health is a resident of Jacksonville and refuses compensation for his services.

Chief clerk.—The chief clerk is in charge of the clerical force employed by the State board of health and exercises a general supervision over property, records, and accounts. He is also stenographer for the State board of health during its meetings.

Auditor.—The auditor is responsible for the correctness of all bills and the preparation of vouchers together with their transmission to the comptroller, as well as acting as the bookkeeper of the State board of health.

Requisitions.—Requisitions for supplies are required except when the purchase amounts to less than \$1 or when it may be classed as an emergency expenditure. When articles are bought under these circumstances the official making the purchase is reimbursed at the end of the month upon presentation of an expense account.

Requisitions are made in triplicate. They are signed by the State health officer and the auditor of the State board of health. The triplicate is filed in the office of the individual making the requisition,

the duplicate in the office of the auditor and the original sent as an order to the firm from which the supplies are to be obtained.

Requisitions from the branch laboratories are O. K'd by the chief of the main laboratory before they are submitted to the State health officer.

It is suggested that requisitions be submitted on the first of January and July of each year to cover a six months' supply of articles. Thus a larger quantity of material could be bought at one time and a better price obtained. The form or requisition should be changed so that each new requisition should show the amount on hand at the date of the last requisition, the amount received during the previous six months, the amount on hand at the date of the present requisition and the amount required for the coming six months, with additional space for unit price, total price, and catalogue number. These forms may be devised to be used both as a requisition and an order.

Vouchers.—Bills must be submitted in duplicate. After they have been checked by the individual receiving the supplies, duplicate vouchers are made out, certified to by the State health officer and approved by the president of the State board of health. The original voucher, together with the original bill, is transmitted to the State comptroller for settlement, while the duplicate voucher and the duplicate bill are filed in the office of the auditor. At the same time a postal card is addressed to the payee informing him that his bill has been forwarded to the State comptroller for payment.

The State board of health is allowed by law the sum of \$2,500 monthly from which to pay traveling expenses or other expenses requiring prompt settlement. This fund is disbursed by the auditor of the State board of health. At the end of the month the vouchers so paid, together with any balance from the fund, are transmitted to the State comptroller with the request that another sum of \$2,500 be allotted for the following month.

All accounts are entered under the name of the payee in a large book ruled so that the amounts may be segregated according to the division of the State board of health incurring the expenditure or the activities necessitating the expense. Special forms are used by the employees of the State board of health on which to itemize their travel or emergency expenses.

It would seem better to arrange the bookkeeping so that the different expenditures could be itemized according to the nature of the expense as well as according to the bureau or division incurring the expense. This could be done readily by instituting a filing-card system for expenditures. There should be a card for each item or group of items, ruled to show the date, the voucher number for reference, and the bureau or division incurring the expense. Also a cross-reference card on which could be shown the amount of

expense incurred in certain well-defined activities, as, for instance, expenses incurred in antituberculosis work or on account of small-pox, etc.

The book at present in use would be needed for the entry of expenditures under name of payee and voucher number only.

Buildings.—The headquarters of the State board of health are located in Jacksonville in a fireproof building owned by the board. This building is steam heated, well lighted and ventilated, and provided with modern toilet appliances. Its construction was finished in 1912 at a cost, including grounds, of approximately \$40,673.82. The grounds were obtained from the city of Jacksonville at the nominal cost of \$100. Being marshy land a great deal of filling was required.

On the first floor of this building ample laboratory space is provided, together with an office for the chief of the diagnostic laboratory and a room to house the division of vital statistics. The second floor contains six rooms occupied respectively by the State health officer, the assistant to the State health officer, the chief clerk, the auditor, a stenographer, and the library. The veterinary division is located in the basement, which also contains rooms for washing glassware and preparing media used in the laboratory, storage space, the heating apparatus, and the ice machine. The attic is utilized as a store room for old records. In connection with the auditor's office there is provided a fireproof vault. Located on the ground surrounding the building is an animal house designed to care for the animals used in the laboratory.

The main building is fast becoming too small to accommodate the various offices of the State board of health and in time will have to be enlarged.

The State board of health also owns a brick office building at Tampa, which was constructed in 1910 at a cost of \$17,511.60. This building houses the district health officer and the branch laboratory and contains much more space than is at present necessary. Some of the extra space is at present being used by the county medical society and as a laboratory for the city food and drug department.

There is another fireproof building owned by the State board of health at Pensacola, which was completed in 1915 at a cost of \$19,424.34. It furnishes space for the branch laboratory and an office for the district health officer. The building is large, well planned, and well constructed. The necessity for such a large building is not apparent. One room in the building has been loaned to the county medical society. The State board of health also owns four isolation hospitals. Mention of these will be made hereafter.

Office hours.—The office hours of the employees of the board of health are from 8.30 a. m. to 5 p. m., with one hour for lunch, every

day except Sundays and holidays. Some of the bacteriologists are not infrequently engaged in their duties before this hour and are present in the laboratory Sundays and holidays for a sufficient length of time to attend to necessary work. Each employee is allowed one month's leave of absence on full pay, during the year.

Library.—The library located at the headquarters of the State board of health is small but well ordered and contains text books, books of reference, scientific magazines and reports, and publications from other health organizations. The library is well catalogued and indexed according to subject and author, making it possible to find with little delay any article desired.

THE REGISTRATION OF BIRTHS AND DEATHS.

The State legislature in 1915 enacted a law providing for a State-wide registration of births and deaths. This act was modeled after the law proposed by the Bureau of the Census, and it is therefore unnecessary to summarize it here. It has not as yet been put into effect by the State board of health, however, so that at present the registration of births and deaths is accomplished by means of the old system. The successful operation of this system depends primarily upon the enactment by municipalities of a local ordinance in conformity with a model presented by the State board of health. One hundred and twenty cities now have such an ordinance, though few seem to be making any great effort to enforce it. There are, however, certain municipalities where death returns are satisfactory. In fact, four cities have been admitted to the death registration area, and there are other municipalities where, judging from the death rates, the registrations seem equally good. The personnel of the division of vital statistics and their respective salaries are as follows:

1 statistician.....	\$2,000
1 clerk and stenographer.....	900
	<hr/> 2,900

Death registration.—The notification of deaths in the State as a whole is very deficient. There were received in 1915 from all sources 5,446 death certificates, which number in a population of 921,569 gives a death rate of 5.9 per 1,000—obviously incorrect. In order to arrive at a figure which would represent approximately the death rate for the State as a whole, computations have been made based on the records from 21 cities having a death rate of over 10. The results show that the four cities in the registration area have a crude death rate in the aggregate of 16.2 per 1,000. The 17 cities not in the registration area have a combined death rate of 16.6 per 1,000, while the 21 cities have a combined death rate of 16.4. It is thought that the latter figure probably approximates the death rate obtaining over the entire State. No corrections have been made for non-residence, and stillbirths have been excluded. On the basis of a

death rate of 16.4 per 1,000 population it may be assumed that at present but one-third of the deaths that actually occur in the State, are notified to the State registrar.

Preventable diseases.—In determining the number of deaths from preventable diseases, only the deaths recorded in the 21 cities mentioned above have been analyzed. These records show that there were during 1915, 2,318 deaths from causes that might have been prevented, which is 53.4 per cent of the total deaths registered in this area. The following table shows these deaths by causes, death rates per 100,000, etc.

Deaths from preventable diseases, all ages, in 21 cities of Florida having a death rate of over 10 per 1,000, year ended Dec. 31, 1915.

Disease.	Total number of deaths.	Death rate per 100,000 population.
Tuberculosis, pulmonary.....	468	177.1
Tuberculosis, other forms.....	47	17.7
Pneumonia.....	253	95.7
Typhoid fever.....	81	30.6
Malaria.....	41	15.5
Influenza.....	49	18.5
Measles.....	10	3.7
Diphtheria.....	41	15.5
Whooping cough.....	10	3.7
Tetanus.....	39	14.7
Syphilis.....	52	19.6
Meningitis, exclusive of tuberculosis.....	27	10.2
Septicemia, including puerperal.....	54	20.4
Diarrhea and enteritis.....	285	107.8
Dysentery, endamoebic and bacillary.....	13	4.9
Other acute infections.....	45	17.0
Malignant growths.....	171	64.7
Pellagra.....	127	48.0
Accidental deaths.....	194	73.4
Causes peculiar to early infancy.....	311	117.7
Total.....	2,318	.....

Deaths in infants under 1 year, in 21 cities of Florida having a crude death rate of over 10 per 1,000 inhabitants, year ended Dec. 31, 1915.

Causes given in death certificates.	Deaths.	Per cent of total deaths under 1 year.
Tuberculosis.....	2	0.35
Pneumonia.....	63	11.0
Tetanus.....	19	3.3
Malaria.....	2	5.0
Influenza.....	2	
Measles.....	1	
Diphtheria.....	2	
Whooping cough.....	4	
Syphilis.....	7	
Typhoid fever.....	1	
Erysipelas.....	1	
Infantile paralysis.....	1	
Bronchitis.....	2	
Pyemic infection.....	2	2.4
Meningitis, exclusive of tuberculosis.....	14	
Diarrhea and enteritis.....	121	21.2
Pellagra.....	1	1.7
Accidental deaths.....	9	1.5
Premature births.....	100	17.5
Congenital debility, convulsions, etc.....	74	13.0
Other causes, mostly preventable.....	61	10.7
Unspecified.....	76	13.3
Total.....	560	99.42

Table of information relating to birth and death registration in 21 cities of Florida having a recorded crude death rate of over 10 per 1,000, year ended Dec. 31, 1915.

	Population.			Number of deaths.			Death rate per 1,000.			Number of births.			Birth rate per 1,000.			Still-births.
	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.	Total.	
Cities in registration area for deaths:																
Jacksonville.....	35,909	37,228	73,137	530	824	1,354	14.7	22.1	18.5	947	724	1,671	26.3	19.4	22.8	185
Pensacola.....	14,290	11,452	25,742	176	241	417	12.3	21.0	16.2	357	188	545	24.9	16.4	21.1	59
Tampa.....	39,259	12,262	51,521	491	253	744	12.5	20.6	14.4	1,164	220	1,384	29.6	17.9	26.8	85
McC. West.....	15,457	5,950	21,437	193	92	285	12.4	15.4	13.2	343	106	449	13.2	17.8	20.9	31
Total.....	104,945	60,892	171,837	1,390	1,410	2,800	13.2	21.0	16.2	2,811	1,238	4,049	26.7	18.5	23.5	360
Cities not in registration area:																
Orlando.....			6,449	97	51	148			23.1	77	23	100			15.5	16
Apalachicola.....			2,742	15	44	59			21.5	47	35	82		27.7	29.9	3
St. Petersburg.....	1,482	1,260	2,742	114	36	150			20.8	92	44	136			18.9	17
Ocala.....			5,370	34	75	109			20.2	52	29	81			15.0	6
St. Augustine.....			5,471	61	46	107			19.5	74	32	106			19.3	3
Palatka.....			4,622	37	44	81			17.5	51	40	91			19.6	8
Tarpon Springs.....			1,938	17	16	33			17.0	42	9	51			26.3	7
Fernandina.....	1,158	1,953	3,111	13	39	52			19.9	8	42	50		6.9	16.0	3
Fort Myers.....	2,222	1,022	3,244	34	20	54			19.5	56	12	68		21.1	20.9	3
Miami.....	9,916	5,676	15,592	114	129	243			15.5	210	135	345		23.7	22.1	37
Gainesville.....	3,609	3,127	6,736	42	62	104			15.4	86	42	128		13.4	19.0	11
Plant City.....			3,229	25	23	48			14.8	54	11	65			20.1	9
Lakeland.....			7,287	79	27	106			14.5	78	18	96			13.1	5
West Tampa.....	6,867	970	7,837	86	20	106			13.5	301	29	330		43.8	42.1	20
Tallahassee.....			5,192	30	35	65			12.5	52	31	83			15.9	18
De Land.....	2,054	1,436	3,490	24	18	42			12.0	45	12	57		8.3	16.3	4
De Funiak Springs.....			2,824	20	11	31			10.9	22	11	33			11.6	2
Total.....			92,322	842	686	1,538			16.6	1,347	555	1,902			14.0	172
Grand total, 21 cities.....			264,159	2,232	2,106	4,338			16.4	4,158	1,793	5,951			22.5	532

Birth registration.—There were registered during the year 1915 from the 21 cities 5,951 births as against 8,178 for the entire State. The recorded birth rate for the 21 cities in the aggregate is therefore 22.5 per thousand while the recorded birth rate for the State is but 8.8 per 1,000. The city showing the highest birth rate is West Tampa with a recorded rate of 42.1 per 1,000, or 43.8 for the white and 29.8 for the colored population. Several other cities show a commendable effort to secure the notification of births as indicated by a recorded rate of 25 and over per 1,000.

Discussion.—It is desirable to bring the State of Florida into the registration area for deaths as soon as possible. To do this will require the institution of many measures which, as yet, have not been attempted. Progress was unfortunately interrupted by the untimely death of the statistician of the State board of health. However, there has since been appointed a statistician familiar with registration methods. It is therefore thought that specific suggestions for putting the new law into effect are unnecessary.

After the law has been put into effect and the number of certificates registered increases, it will be necessary to enlarge the clerical force in order to attend to the increased amount of correspondence that will necessarily occur.

EPIDEMIOLOGICAL ACTIVITIES.

The epidemiological activities of the State board of health will be discussed under the following headings: The notification of disease, the control of disease, the diagnostic laboratories, and the field forces, active and potential.

The Notification of Disease.

Requirements of laws.—A law enacted in 1889 required the notification of yellow fever, cholera, and smallpox only. At that time yellow fever especially had caused such widespread havoc throughout the State that it was uppermost in the minds of the people.

The "vital statistics" act passed in 1915 carried with it a clause relating to the notification of disease.

These laws are summarized as follows:

It is the duty of every physician in the State to report immediately to the president of the board of health, by telegraph or other expeditious manner, any case of yellow fever, smallpox, or cholera coming within his practice. For failure to report, there is provided a fine of not to exceed \$1,000 or imprisonment not to exceed six months.

Physicians are also required to report the above-named diseases to the city or county health officer, or, if there is no such officer, to the mayor or the chairman of the county commissioners. For failure to report there is provided a fine of \$100 or imprisonment for 30 days.

The State board of health is empowered "to adopt, promulgate, and enforce rules and regulations requiring the notification of all cases of sickness necessary for the preservation and protection of the public health."

Requirements of regulations.—In addition to the law which requires the notification of smallpox, yellow fever, and cholera, the State board of health, acting under the general authority granted by law to promulgate regulations in the interest of the public health, has formulated regulations as follows:

It is the duty of every physician to report immediately to the State health officer or his representative, by first mail, any case of tuberculosis, typhoid fever, scarlet fever, diphtheria, measles, cerebrospinal meningitis, anterior poliomyelitis, bubonic plague, glanders, anthrax, rabies, or leprosy occurring in his practice.

Where no physician is in attendance it then becomes the duty of the person having charge of, or in attendance upon, or upon whose premises a case occurs, to make the necessary report.

Methods of procedure.—The form devised for the use of physicians to report diseases is a postal card containing the usual questions. Physicians, however, have not voluntarily made use of the cards, and the regulation is not enforced. As a result the records from this source are worthless. In a few instances letters may be found on file from physicians reporting cases of, or rather outbreaks of, certain diseases, but such reports are not worth analysis.

Positive reports from the laboratories have been practically the only source of information of the prevalence of malaria, typhoid fever, tuberculosis, and diphtheria occurring in different localities. While it is true that many physicians of the State make use of the laboratory facilities, the information of the prevalence of disease obtained in this way is incomplete and inadequate.

Discussion.—It is essential that the clause in the "vital statistics" act recently passed by the legislature and giving authority to the State board of health to collect morbidity reports be put into effect without delay.

Even then it will be some time before all of the physicians learn to appreciate their obligations to the State and to respond to the request that diseases be reported.

It would also be wise to continue the acceptance of positive reports from the laboratories in lieu of morbidity reports, in which case data cards submitted with specimens and on which are noted results of the examination, should conform in size to the morbidity report cards.

The Control of Disease.

Requirements of laws.—In addition to the general powers and duties vested in the State board of health, the following provisions of law apply directly to the control of disease:

It is the duty of the local authorities after a suspicious case of yellow fever, cholera, or smallpox is reported, to take immediate steps to make the necessary examination, furnish medical attention, food, and clothing, and to do whatever may be necessary to care for, segregate, and guard the case until the arrival of the State health officer.

Whenever the State health officer has investigated a suspicious case as above and determined that the same is a menace to the citizens of the State, he or his agent is required to assume charge, after which all legitimate expenses concerned therewith must be defrayed out of the funds of the State board of health.

For a violation of these provisions by any physician, city health officer, mayor, county physician, or chairman of the board of county commissioners there is provided a fine of \$100 or imprisonment for 30 days.

It is unlawful for any person to operate a hotel, boarding house, restaurant, or lunch counter unless all doors, windows, and similar openings in the dining room, kitchen, and passageways between and hallways leading thereto, or any place where food is prepared, are screened with wire netting with a mesh sufficiently close to prevent the admission of flies.

The law further provides that all food offered for sale, and which may be eaten raw, or without further cooking, must be screened with wire netting of sufficiently close mesh to prevent the admission of flies.

It is made the duty of the person operating any place where food is sold to keep such place free of flies so far as possible.

For violation there is provided a fine of not to exceed \$50 or imprisonment not to exceed three months. Each day that business is conducted in violation of the act constitutes a separate offense.

Requirements of regulations.—Acting under the general provisions of statute the State board of health has promulgated the following provisions in regulations for the control of disease:

Concealing a case of communicable disease or any personal effects or other articles which have been used by such case is prohibited.

When it is deemed necessary, the State health officer or his assistant is authorized to remove to a suitable place for isolation, any case of communicable disease and provide the required medical treatment.

Where the patient is too sick to be moved, isolation may be practiced on the premises.

Contacts may be quarantined provided that in the case of scarlet fever and diphtheria, when reasonable precautions are taken, the breadwinner may be permitted to carry on his vocation.

By isolation is meant the complete separation of the sick person and those dependent upon him, from all other persons on the premises.

It is advised that a nurse be obtained but where this is impossible for financial reasons, the parent or other attendant assuming the duties of nurse must be isolated with the patient.

Warning placards are required in the case of diphtheria, scarlet fever, measles, epidemic cerebrospinal meningitis and smallpox. In the last case, however, only those contacts who refuse vaccination are quarantined.

The warning cards are furnished by the State board of health, and it is prohibited to alter, deface, remove or destroy them without the authority of the State board of health or the local health officer.

The occupant of a placarded house is required to notify the State board of health when such card has been removed or destroyed without authority.

It is prohibited to use any apartment previously occupied by a person ill with smallpox, typhoid fever, diphtheria, epidemic cerebrospinal meningitis, or tuberculosis, until such apartment has been thoroughly disinfected. When these requirements are not complied with the local or State health officer may placard the house with a warning to this effect.

It is forbidden to spit upon sidewalks, railroad depots, cars, or platforms, on the floors or walls of any church, theater, street car, or in other public place except in spittoons provided for the purpose. Spittoons must be furnished for this purpose by the person in control. Spittoons must be cleaned once a day and each must contain at least one-half pint of a germicidal solution.

A placard prohibiting spitting, to be furnished by the State health officer, must be displayed in all stations, cars or other vehicles.

Notwithstanding the meagerness of the regulations the methods of prevention as practiced are in conformity with modern procedures. The methods advocated are shown in the tabulation. It should be noted that they are not always covered by either law or regulation.

Smallpox.—Smallpox, a disease entirely too prevalent in the State, is due to a failure on the part of some of its citizens to protect themselves by vaccination. It might be said in this connection that in the city of Tampa where last year there were some 56 cases of smallpox, but few originated in the foreign population who are adequately vaccinated. The vast majority were in unvaccinated native-born Americans.

The laws of the State require that the expense of caring for smallpox be defrayed from the funds of the State board of health, and so long as there are unprotected individuals there is a constant expenditure necessary to provide for those who contract the disease. Those citizens who respect the rights of their neighbors and submit to vaccination are compelled to stand their share of the expenses incurred solely because of the perverseness of those who will not submit to vaccination and who, therefore, lay themselves open to infection.

For some years the State has had to maintain four hospitals solely for the purpose of isolating smallpox. During the year 1915 these hospitals cared for some 99 cases of smallpox at a cost to the State of \$4,277.64. The personnel of these hospitals and their respective salaries are as follows:

1 superintendent (Duval County).....	\$780
1 attendant (Duval County).....	360
1 caretaker (Hillsboro County).....	480
1 caretaker (Escambia County).....	360
1 caretaker (Dade County).....	180
Total.....	2,160

Many of the cases are of residents of the city in which they are found and are occasioned by neglect on the part of local authorities to enforce vaccination, which likewise accounts for the frequency of secondary cases. The local authorities are too prone in public health matters to shift their responsibilities to the State, forgetting that they are under some obligation to share morally and financially in the fight against disease. There is no more reason why the State should be required to defray the expenses incurred in caring for

smallpox patients than for patients suffering from diphtheria or any other common communicable disease, except that, unfortunately, an old law in the case of smallpox, cholera, and yellow fever requires the State to shoulder the entire burden. The writer knows of no other instance where the State is required to maintain isolation hospitals for local communities. This is a duty of the county, the city, or both. Arrangement should be made with the counties whereby these hospitals could be transferred. They need be opened only as the occasion arises. There is also a need for a State-wide vaccination law, thereby permitting the health officer to apply the only sure method for eradicating smallpox.

Tuberculosis.—Because of its equable climate, Florida is thought to be peculiarly suited to those suffering from tuberculosis, for which reason a great many tuberculous individuals from farther north migrate into the State. The death rate from this disease is therefore high, being for the 21 cities from which death certificates were analyzed, 177.1 per 100,000. Because of a deficiency in the records it was not possible to determine the death rate among residents only. It is obvious, however, that the problem is even greater here than in many other localities.

The State legislature has authorized the State board of health to erect a tuberculosis sanatorium and make the necessary regulations for its management. Fortunately this act did not provide any money, so that what would have been a useless expenditure was obviated. Any hospital which the State might build would be entirely inadequate to meet the situation. The question is one that must be carefully considered by each community, for it is only by a multiplicity of hospitals, and therefore a distribution of expenses, that isolation is feasible. The necessity, however, is great and should be immediately provided for by individual counties.

Tuberculosis is said to be especially common among the cigar makers. There is no law or regulation prohibiting a person suffering from tuberculosis to work in cigar factories. The prevalence of the disease is no doubt due to the close proximity of the workers to each other and the overcrowded conditions in the home. It would seem consistent for the State board of health to promulgate regulations for the maintenance of sanitary conditions in the cigar factories of the State.

Typhoid fever.—The death rate from typhoid fever per 100,000 population for the 21 cities during the year 1915 was 30.6, a rate too high for a progressive and growing State encouraging immigration. It is a good index to show the need of epidemiological studies and activities along the lines of sewage disposal and water purification by a competent public health engineer in the State board of health, as

well as a more careful supervision of patients, and a more thorough enforcement of the law requiring the screening of privies.

Pellagra.—The death rate for pellagra per 100,000 in the cities under consideration in 1915 was 48.

The State board of health has made through its district health officers, public health nurses, and physicians of the State a more or less superficial survey of the pellagra situation and has carried on some active work along the lines laid down by Goldberger, with some excellent results. Without morbidity reports, it is difficult to get any idea of the prevalence of this or in fact any other disease.

Tetanus.—The death rate from tetanus in the 21 cities in 1915 was 14.7 per 100,000. Of the 39 cases reported, 19 were in infants under 1 year of age. As in the case of puerperal septicemia and ophthalmia neonatorum, the ignorant midwife is largely responsible for the condition, which occurs mainly among the colored population. The State board of health should attempt some supervision over the work of these women through its field nurses, and should issue free of charge prophylactic packages against tetanus and ophthalmia neonatorum. The package used by the public health department of Cuba might be taken as a type. The State board of health issues tetanus antitoxin free to indigent cases.

Diphtheria.—The death rate per 100,000 for diphtheria in 1915 for the 21 cities was 15.5. There were 41 deaths from this disease. Comparing this number with the positive reports from the laboratories (the only morbidity reports available) there seems to have been a case-fatality rate of 5.3. It is probable that while practically all deaths have been reported from this area there are a number of cases which recover and from which specimens were not taken; the case-fatality rate, therefore, would be even lower than 5.3. This is a very good showing. It indicates a prompt and frequent use of antitoxin. The State board of health furnishes antitoxin to the indigent cases free of charge, and has an arrangement with an establishment producing biologic products whereby those able to pay may secure the antitoxin at reduced rates. That the antitoxin may be easily secured, certain drug stores in different parts of the State have been designated as distributing centers.

Dysentery.—There were reported from the 21 cities during 1915, 13 deaths from dysentery, bacillary and endamœbic. In studying the death certificates filed with the State board of health one not infrequently encounters the term "dysentery," without any qualification, given as a cause of death. In the table of preventable diseases such diagnoses have been placed under the heading "diarrhea and enteritis." It is known, however, that both bacillary and endamœbic dysentery occur in the State and it would be well for the State board

of health to carry on some investigations to determine the prevalence, especially of the latter.

Malaria.—There were reported from the 21 cities in 1915, 41 deaths from malaria, and there were found as the result of laboratory examinations 291 positive cases. Health departments of the Northern States are little concerned with this disease, but in Florida it causes no small amount of work to the bacteriologist. It is suggested that more intensive studies of malaria be carried on by the epidemiologist, bacteriologists, and sanitary engineer of the State board of health, so that accurate data may be obtained and placed before the local authorities with a view to securing their cooperation and ultimately eradicating the breeding places of anopheline mosquitoes in and near the centers of population.

Hookworm.—Hookworm has been found to be prevalent in Florida. In the past a large amount of dispensary work was done for the purpose of curing the disease. It was so difficult, however, to secure the cooperation of the people in the construction of sanitary privies, and reinfections were found to be so common that activities along this line have been discontinued except to families who agree to maintain better sanitary conditions. When the time arrives that a more extended campaign can be carried on against the insanitary privy it may be wise to reopen the dispensaries and resume the treatment of patients.

Trachoma.—Trachoma has been found to exist in several localities. The extent of its distribution is unknown and further investigations are necessary. While the health officer is not usually concerned with the treatment of disease outside of isolation hospitals, exceptions may be made both in the case of hookworm and trachoma, and it may be found wise at some future date to provide, as a part of the eradication measures, means for treating patients suffering from trachoma.

Occupational diseases.—With the exception of a few deaths from caisson disease among the sponge divers and accidents occurring among railroad employees, deaths from occupational diseases were few in number in 1915, and have been recorded as accidental deaths in the tabulation.

The Diagnostic Laboratory.

The main laboratory of the State board of health was established in 1903 and is located in the State board of health building at Jacksonville. On account of the steady increase in the amount of work and in order to facilitate the handling of specimens received from physicians and health officers located in more distant parts of the State, branch laboratories have been established from time to time,

Tabulation of the methods pursued to prevent the spread of certain of the communicable diseases.

Disease.	To be reported.	Placarded.	Isolation of patient.	Quarantine of contacts.	Terminal disinfection of rooms and articles.	Sale of dairy products.	Exclusion from schools.		Special precautions.	Disinfection of discharges.
							Patient.	Contacts.		
Smallpox.....	Yes immediately, by wire.	Yes.....	Yes, until complete desquamation.	Not if vaccinated.	Yes.....	.....	Yes.....	Not if vaccinated.	Vaccination of contacts (voluntary).	
Diphtheria.....	Yes immediately, by mail.	Yes.....	Yes, until two negative cultures obtained.	Yes except breadwinners.	Yes.....	Prohibited.	Yes.....	Yes.....	Cultures from throat and nose of contacts and immunizing dose of antitoxin (voluntary).	Yes from throat, nose, and mouth.
Scarlet fever.....	do.....	Yes.....	Yes, until complete desquamation.	do.....	Yes.....	do.....	Yes.....	Yes.....	.....	Do.
Measles.....	do.....	Yes.....	Yes.....	No.....	No.....	.....	Yes.....	Not if immune.	.....	Do.
Anterior poliomyelitis.....	do.....	No.....	Yes.....	No.....	No.....	.....	Yes.....	No.....	.....	Do.
Epidemic cerebrospinal meningitis.....	do.....	Yes.....	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes.....	.....	Do.
Tuberculosis.....	do.....	.....	.....	.....	Yes.....	.....	Yes.....	No.....	Instructions by visiting nurse when practicable.	Do.
Typhoid fever.....	do.....	.....	.....	.....	.....	Prohibited.	Yes.....	No.....	.....	Yes, of feces and urine.
Leprosy.....	do.....	.....	Yes.....	.....	Yes.....	.....	Yes.....	No.....	.....
Trachoma.....	No.....	.....	.....	.....	No.....	.....	Yes.....	No.....	.....

so that there are at present, in addition to the main laboratory, five others—one located at Tampa, one at Pensacola, one at Miami, one at Tallahassee, and one at Key West.

The work done at these laboratories consists of the examination of specimens for evidence of diphtheria, typhoid fever, malaria, tuberculosis, intestinal parasites, gonorrhea, ophthalmia neonatorum, rabies, and malignancy. In addition, a certain amount of water analysis is performed and occasionally the analysis of a milk sample submitted by an official of the State board of health while engaged in making a sanitary survey. At the last annual meeting of the State board of health (Feb. 8, 1916) it was decided to perform Wassermann reactions as a routine measure.

The members of the laboratory staff are permitted to perform certain laboratory work for physicians which is not always of a public-health nature. Such work includes blood counts, differential and plain, urinalysis, and the preparation of autogenous vaccines.

The personnel of the laboratories and their salaries at present are as follows:

Central Laboratory (Jacksonville):		Salary.
Senior bacteriologist.....		\$2, 500
1 assistant bacteriologist.....		1, 500
1 assistant bacteriologist.....		1, 200
1 assistant bacteriologist.....		900
1 stenographer.....		900
1 technician.....		480
1 orderly.....		360
1 orderly.....		300
		————— \$8, 140
Tampa Laboratory:		
1 bacteriologist.....		2, 000
1 assistant bacteriologist.....		1, 500
1 stenographer.....		780
1 janitor.....		480
		————— 4, 700
Pensacola Laboratory:		
1 bacteriologist.....		2, 000
1 janitor.....		480
1 office boy.....		240
		————— 2, 720
Miami Laboratory:		
1 bacteriologist.....		2, 000
1 office boy.....		240
		————— 2, 240
Tallahassee Laboratory:		
1 bacteriologist (vacant).....		2, 000
1 office girl and stenographer.....		240
		————— 2, 240
Key West Laboratory:		
Laboratory in charge of assistant to the State health officer. No extra remuneration for laboratory work		—————
		20, 100

Methods of procedure.—In the case of diphtheria the mailing outfit in use consists of a sterile swab inclosed in a sterile test tube stopped with a cotton plug and packed in an approved mailing tube. Culture media are sent out only in case of a local epidemic where the health officer can be made responsible for their distribution. In order that a diagnosis may be made as promptly as possible, smears prepared from the swabs are first examined. At the same time a culture is made from the swab for subsequent examination. The type of the organism is always determined, but not reported nor recorded. The types commonly found and reported upon as positive are the A, C, and D, and A', C', and D'. The diphtheria work is performed for diagnosis, for the detection of carriers among contacts, and for the release of quarantine.

In the case of tuberculosis the mailing outfit consists of a wide-mouthed bottle containing about 10 c. c. of lysol solution and packed in an approved mailing tube. Upon receipt of a specimen of sputum for examination the bottle is placed in the autoclave and heated, after which its contents are found to be emulsified. It is then centrifugalized and examined by the usual method.

In the case of typhoid fever, malaria, and gonorrheal or other pus infection, the mailing outfit consists of two glass slides properly packed, on which drops of blood may be placed, if for the diagnosis of typhoid fever, or a smear of blood or pus, as the case may be, if for the diagnosis of malaria, or gonorrhea or other purulent infection.

Each mailing outfit is accompanied by a blank form to be filled in by the physician with the necessary data. The back of this blank contains directions for collecting the specimen. Upon receipt of a specimen for examination the specimen is given a serial number which, with certain of the information contained on the data sheet, is transcribed to a daily report sheet on which is afterwards added the result of the examination. This report is submitted daily to the secretary of the State board of health.

The result of the examination is reported by telephone, telegraph, or mail, depending upon the instructions received from the person submitting the sample. When a report is made by telephone or telegraph it is always followed by a mailed report on a regular form devised for the purpose. Different forms are used for each disease, the form with its corresponding data blank for each disease having a distinctive color so that it may be quickly identified. Each week there is submitted to the secretary a weekly report containing the number of examinations that have been found positive for the commoner diseases and the locations from which the specimens were sent. Likewise there is made a monthly report containing this information, as well as similar information for the less prevalent maladies.

Upon the completion of an examination the results are entered on the original data sheet, which is filed numerically and indexed by name of physician and locality.

The diagnostic laboratories are well equipped to perform all work that they may be called upon to do, and the work performed therein is skillfully done.

Discussion.—The cost of maintaining the diagnostic laboratories in 1915 amounted to \$29,912.65. There were 40,677 examinations made, making a cost per examination of 73½ cents. Excluding the cost per examination in Key West, where no charge has been made for services, the lowest cost is found to be 60½ cents in the main laboratory at Jacksonville, where 19,708 examinations were made, at a total cost of \$11,959.85.

The following table gives these figures by laboratories:

Laboratory.	Total examinations.	Average number bacteriologists employed during year.	Total number of months employed.	Total number of hours engaged in bacteriological work.	Examinations per hour per man.	Total cost of laboratory.	Cost per specimen examined.
Main (Jacksonville)....	19,708	4	47½	10,310	1.90	\$11,959.08	\$0.60½
Tampa.....	10,100	2½	30	6,558	1.54	6,901.98	.68½
Pensacola.....	4,363	1	12	2,660	1.64	4,079.99	.93½
Miami.....	2,395	1	12	2,660	.90	2,950.47	1.23
Tallahassee.....	3,281	1	12	2,660	1.23	3,594.09	1.09½
Key West.....	830					2 427.01	.51½
Total.....	40,677					29,912.65	.73½

¹ Cost of new construction has been subtracted.

² No salary included. Bacteriological work is performed by the district health officer.

The greatest number of men employed in bacteriological work during 1915 at the main laboratory was seven, the average for the year being four. In making this average the chief of the laboratory has been considered as giving full time to diagnostic work. As a matter of fact, however, much of his time is taken up with administrative details. It is suggested that the work of a bacteriologist is in the laboratory rather than the office and, except for an occasional correspondence of a purely technical nature, such matters should be attended to by other officials of the health department.

There has also been included the work performed in the laboratory by the sanitary inspector, who devotes at least one-half of his time in the capacity of a technical assistant. It is the intention further on in this report to recommend other duties for the sanitary inspector, as it is thought that the strictly technical men now employed, namely, the chief bacteriologist and his three assistants, are ample to carry on the work at all times.

In going over the monthly expense account from the various laboratories it would seem that a good many articles are bought in the localities which had better be bought in bulk by requisition.

On the 1st of January and 1st of July each year the bacteriologist in charge of the main and branch laboratories should submit a requisition for at least a six months' supply of stationery, drugs, chemicals, and laboratory supplies, those from the branch laboratories to be submitted through the chief of the main laboratory for approval.

It is also suggested that where practicable prepared culture media be furnished to the branch laboratories from the main laboratory, and that all tumor work be carried on in the main laboratory by one man skilled in pathological as well as bacteriological diagnoses.

The chief of the main laboratory should be made responsible for the technical work of each branch laboratory, but for the purpose of general administration the branch laboratories should be placed under the supervision of the assistant State health officer located in the district, and the main laboratory should be made a part of a bureau of communicable diseases.

It is questionable whether strictly clinical examinations should be made at all, certainly not where there is a private laboratory in the vicinity. If, because of local conditions, it is deemed advisable to extend certain clinical laboratory facilities to the physicians it should be done free of charge in indigent cases, and some arrangement made with the physicians whereby the State would be reimbursed if the patient were able to pay.

In the Tampa laboratory the bacteriologists are both graduate physicians, and the sanitary inspector stationed in that locality also devotes much of his time to laboratory work. The same remarks that apply to the sanitary inspector at the laboratory in Jacksonville would apply to Tampa, but in the latter place it would probably be necessary to employ a laboratory assistant if the sanitary inspector were detailed for other work. The assistant bacteriologist has had experience in water and sewage work, and it might therefore be well to remove him to Jacksonville in charge of a water and sewage laboratory, as contemplated in the formation of a bureau of sanitary engineering, substituting in his place in the laboratory a bacteriologist who need not necessarily be a physician.

The branch laboratories at Miami and Tallahassee are located in rooms provided by the city, which also furnishes the necessary heat, light, and electricity. The city of Miami furnishes stenographic service for the bacteriologist. These two laboratories perform a good deal of the laboratory work required by the city, including milk and water analyses.

The Key West laboratory is located in a room paid for by the State board of health; the branch laboratories at Tampa and Pensacola are located in buildings owned by the State board of health.

It should be noted that the cost of maintaining the laboratories of the State board of health is approximately one-fifth of the total cost

of operating the entire department, and while it is realized that a diagnostic laboratory is one of the most important divisions of public-health work, the amount expended in the present instance should certainly not be exceeded. As compared with other States, Florida has a goodly number of branch laboratories. Theoretically, at least, there can not be too many, but practically there is a limit which is certainly reached in the present instance, and the establishment of any more would be unwarranted.

Number of examinations made in the laboratories of the Florida State Board of Health, year ended Dec. 31, 1915.

	Main (Jackson- ville).	Tampa.	Pensa- cola.	Miami.	Talla- hassee.	Key West.	Total.
Intestinal parasites.....	1,901	1,255	422	100	153	32	3,863
Diphtheria (swabs).....	532	123	174	108	122	14	13,037
Diphtheria (cultures).....	7,339	1,451	1,461	273	1,419	21	
Gonorrhea.....	750	504	475	90	61	22	1,902
Malaria.....	2,278	1,926	468	217	587	16	5,492
Tumors for malignancy.....	98	119	36	.....	.....	.....	253
Rabies.....	67	8	5	.....	7	.....	87
Tuberculosis.....	1,575	978	472	212	163	13	23,413
Typhoid fever.....	2,142	1,549	410	197	426	11	4,735
Paratyphoid fever.....	33	.....	.....	.....	52	1	86
Water for colon.....	1,025	158	61	282	37	10	1,573
Water, chemical.....	875	.....	.....	.....	.....	.....	875
Leprosy.....	5	4	.....	.....	.....	1	10
Ophthalmia neonatorum.....	10	31	.....	.....	.....	.....	42
Rats examined.....	.....	1,525	.....	.....	.....	668	2,193
Milk analyses.....	175	3	155	776	29	.....	1,138
Urine analyses.....	159	245	88	42	87	4	625
Blood counts.....	173	120	111	24	80	7	515
Animal inoculations.....	37	16	8	.....	3	1	65
Miscellaneous.....	534	85	17	74	55	8	773
Total.....	19,708	10,100	4,363	2,395	3,281	830	40,677

¹ Includes examinations for carriers and of release cultures.

² Includes reexaminations.

Field Force, Active and Potential.

The State board of health is fortunate in having in its employ a field force for public-health work. The personnel of this force and their respective salaries are at present as follows:

4 assistants to the State health officer, at \$2,400.....	\$9,600
3 assistants to the State health officer, at \$2,000.....	6,000
3 county agents (part time), at \$600.....	1,800
6 public-health nurses, at \$1,200.....	7,200
4 sanitary patrolmen, at \$1,200.....	4,800
Total.....	29,400

District health officers.—For several years previous to 1913 there were employed four assistants to the State health officer. One was detailed to headquarters and three were detailed to field work. In 1913 the State was divided according to density of population and facilities of transportation into seven districts, and four more assistants to the State health officer were appointed, thus making seven medical assistants in the field, or one to each of six districts, and one

for the State at large, while the bacteriologist appointed for work in the branch laboratory in the remaining district was detailed to act in the capacity of the assistant to the State health officer in the district. His duties, however, have been confined almost entirely to the laboratory.

The district health officers are expected to make an inspection trip through their districts at least three times each year. If an emergency arises the officer in whose territory it occurs is detailed to make an investigation and when necessary to institute preventive measures for the control of the disease. Blank forms have been devised for the purpose of submitting epidemiological data by attending physicians or data gathered during investigations of smallpox, typhoid fever, diphtheria, scarlet fever, rabies, and pallagra.

Upon the request of local authorities sanitary surveys are carried on and expert advice is given.

Upon the completion of any investigation or inspection a report is submitted to the State health officer.

The assistants to the State health officer are required to deliver popular lectures as the occasion arises. One assistant has been especially active along these lines in that he gives a course in public health in high schools. This course has been made a part of the regular curriculum and the pupils are required to pass an examination on the subject at the end of the term. This is a very excellent idea and should result in great good.

County agents.—The county agent is a remainder from the old system in vogue before the position of assistant State health officer was created. The activities of the county agents are limited to the county and to a large extent are confined to the principal city in the county. They are part-time employees and are expected to perform in their respective counties the same duties that are performed by district health officers.

Public health nurses.—The public health nurses of the State board of health began their work less than a year ago. There are now actively engaged in field work six nurses, each having a district. At a recent meeting of the State board of health the State health officer was authorized to employ six additional nurses. This will require the subdivision of the State into 12 districts instead of six as at present. It is the intention to utilize, as soon as possible, the services of the nursing staff for all classes of public health work in which it may engage, though last year the nurses' duties were mainly concerned with tuberculosis, their visits being made only to houses from which tuberculosis had been reported. At these visits they give not only instructions as to the care of tuberculous patients and the means of prevention, but advice and instruction on other health mat-

ters as well. A number of talks have been given before women's clubs and other organizations.

For the part of the year 1915 in which these nurses were employed they visited a total of 1,225 cases of tuberculosis.

When a case of tuberculosis has been seen for the first time, it is reported to the State board of health and a card is filled in with full data relative to the social conditions of the patient; "follow up" reports are forwarded at each subsequent visit. A monthly report of her activities is required from each nurse. Upon her arrival in a community the physicians are first visited and interviewed with reference to any tuberculous patients whom they may be attending, the purpose of the antituberculosis work of the State board of health is explained, together with the methods of procedure, and the cooperation of the physicians is requested.

Sanitary inspectors.—The duties of the sanitary inspectors are not unlike those performed by men in similar positions elsewhere, except that two of them spend much time in the laboratory assisting in routine work. Many of the duties of the sanitary inspectors are performed in the municipality in which the district health officer has his headquarters.

Discussion.—It is unfortunate that some of the assistants to the State health officer are engaged in the private practice of medicine. All experts will agree that private practice and the work of the health officer are incompatible.

Potentially this force is capable of performing an amount of public health work of incalculable value to the State of Florida. Actually, however, there is not sufficient field work of an important and intensive nature accomplished. There is too much time spent at headquarters. The representative of the State board of health is at times too apt to limit his duties to the locality in which he resides, performing work that should be done by a municipal health department. This limited sphere of action is partly due to the fact that the funds of the State board of health will not warrant too large an expenditure for traveling expenses. This obstacle, however, must be overcome, even though it may be necessary to economize in other directions, for in order to get the valuable results that may be expected, the field men must be active in the field. The small municipality and rural districts are in greater need of State aid than is the larger municipality which should be equal to taking care of itself. There are many public health problems in the State requiring thorough epidemiological investigation, and it is strongly urged that intensive studies be carried on as to the prevalence and eradication of malaria, typhoid fever, dysentery, infant mortality, pellagra, tetanus, trachoma, and other similar conditions within the State. That such

work may be performed to the best advantage it should be understood that each district health officer must give his full time to the State and not engage in private practice or any other business that will interfere with his official duties.

Number of investigations made by the assistants to the State health officer, outside of the cities comprising their headquarters, year ended Dec. 31, 1915.

District.	Diphtheria.	Small-pox.	Typhoid fever.	Scarlet fever.	Other preventable diseases.	Sanitary inspections, lectures, etc.	Sanitary surveys.	Total.
Southwestern.....	3	3	2	.....	3	20	2	33
Western.....	1	.....	.....	.....	2	.....	.....	3
South tropic.....	.....	4	.....	.....	.....	2	.....	6
South central.....	5	6	2	3	6	9	1	32
Central.....	5	9	2	.....	22	17	2	57
East coast.....	5	3	3	.....	.....	35	.....	46
West central.....	1	1	.....	.....	3	.....	2	7
State at large.....	4	1	5	1	9	20	6	46
Total.....	24	27	14	4	45	103	13	230

¹ 1 investigation made in east coast district.

² 15 investigations made in the western district.

³ 1 investigation made in south central and one in the western district.

It is suggested that the position of county agent be abolished and that the county be included in the district to which it logically belongs.

It is likewise suggested that the nursing staff be increased as funds will permit, so that each nurse in time will have a small district in which she may carry on all of the duties required of her, including the activities concerned with antituberculosis and other communicable disease nursing, child welfare and prenatal nursing, school nursing, and the supervision of midwives.

It is suggested that much more good could be obtained from the service of the sanitary inspectors if they were given some specific duties to perform. In the present instance they might be transferred to a division of dairy inspection, which should be created in the veterinary division, and given the duties involved in the inspection of milk-producing establishments when such places are not operated under the supervision of local authorities. This would mean that they would require a thorough preliminary training along that line.

It is pointed out that it would be more businesslike to form each district into a health unit to be in charge of the district health officer, who should have as his assistants those public-health nurses working within the district, and the general administrative control of the branch laboratory, where one is established, together with a general supervisory control over local health authorities.

In order to enable the field force to cover more territory in a more expeditious manner and in a way that would eventually prove economical, each district health officer and nurse should be provided with an inexpensive runabout.

The undue morbidity of the State of Florida is chargeable in large part to the ignorance and lack of right living on the part of the negro population; it is therefore obvious that the work of the health officer is required among the negroes as well as among the whites. The preventable diseases are no respectors of color and preventive measures should be applied among the negro race, not only to prevent the spread of disease to the white population, but also to conserve the life and health of the laboring class of the South, upon whose physical fitness many of the industries depend. It would, therefore, be desirable to appoint some colored nurses in the State board of health who can carry on work among their own people to advantage.

Local health authorities.—No county in the State has a health organization of any kind, and there are only two cities in the State having a health department worthy of the name—Jacksonville and Miami. In the other larger cities, as well as in some of the smaller municipalities, there is a part-time health officer whose duties are not onerous. Too much dependence is placed upon aid received from the State, especially in those communities forming headquarters for the assistants to the State health officer. Such a condition is inconsistent in a growing and prosperous community.

Jacksonville.—The health organization of Jacksonville is controlled by a board of health, which has as its executive officer a full-time health officer.

The board of health expended in 1914, \$42,466.44. The financial statement for 1915 has not been completed, but the appropriation for that year amounted to \$36,690, while the total available money for public-health work during 1916 will amount to approximately \$41,152.

The activities of the Jacksonville board of health comprise the health supervision of schools, the control of communicable diseases, infant welfare work, the recording of births and deaths, milk and dairy inspection, including a laboratory, sanitary inspection, mosquito extermination, and the disposal of night soil.

To carry on the work required in a health supervision of schools there are employed two doctors at \$50 per month, both part-time men, and two nurses giving their full time to the work, at \$75 per month. The inspection is made among the white pupils only. During the year 1914 the total cost of this work amounted to \$2,680.27.

For the inspection of milk and dairies there is employed one inspector who, though not a veterinarian, is a graduate of a school of dairying and has had practical experience in the business.

An inspection of some of the producing farms supplying milk to Jacksonville shows that much has been accomplished toward improving sanitary conditions, not by requiring the installation of expensive

equipment, but by teaching the principles of cleanliness, as applied to milk production.

Maintained in conjunction with this division there is a laboratory in which there is employed a bacteriologist and chemist, who receives \$2,100 a year. The principal work of the laboratory consists of the examination of milk samples. In addition to this, analyses are made of the city water supply and a small amount of diagnostic work is performed, especially in the case of diphtheria. Most of the diagnostic work, however, is done in the State laboratory. The analyses of milk samples show that there is a constant improvement in the cleanliness of the milk, as shown by the bacterial count. To support the milk inspection division, including the laboratory, during the year 1915, cost \$3,807.29.

The city board of health owns and controls a modern isolation hospital, which is operated and maintained by the general hospital of the city. The isolation hospital is far superior to most institutions of its kind, and the city of Jacksonville is fortunate in having such excellent hospital facilities for isolating the communicable diseases according to modern ideas.

The registration of births and deaths in the city of Jacksonville is highly efficient and is in the immediate charge of the secretary of the city board of health.

In addition to the two school nurses who perform not only school nursing but nursing in connection with the communicable diseases as well there is employed by the health department one colored nurse who works among the colored population, maintaining a supervision over the negro midwives, and performing work along educational lines and to prevent the spread of the communicable diseases. In addition, the infant welfare society of the city employs a nurse who works under the supervision of the health officer, and there are two nurses employed by private charity who work independently of the health officer. The board of health plans to add two more nurses to its staff in the very near future, after which it is expected that there may be effected an amalgamation of the nursing forces of the city so that it will be possible for them all to work under one head, the health officer, and that the districts will be small enough to enable a nurse to perform all public-health activities required in her respective district. Such an arrangement would be in accordance with modern views and would mean increased efficiency.

There are 15 sanitary inspectors at \$85 a month and one chief inspector at \$150 a month. One of these inspectors is detailed for the inspection of hotels and restaurants; one acts as fumigator, placards houses, and investigates special complaints; and one acts as assistant chief. The others are engaged in general sanitary

inspections. The cost of maintaining the sanitary inspection division in 1914 was \$17,713.

Engaged in the operation of mosquito extermination there are three men employed at a total of \$2,341 per year. Expenses for oil, etc., for 1914 were \$618.87, making a total of \$2,959.87. In addition to this, two creeks in the city are kept free of weeds by contract, at a cost in 1914 of \$350.

The scavenger collecting the night soil pays the city for that privilege and collects his fee from the householder. In this way the board of health receives \$2,712 per year, which may be used for public-health purposes. The night soil is dumped into one of the city sewers at a station especially equipped for the purpose. The board of health employs two men at this station at a cost of \$1,000.

The board of health maintains a free dispensary, employing a pharmacist and three city physicians at \$900 a year each for part-time services.

There are furnished free of charge prophylactic packages, to be used against infantile tetanus and ophthalmia neonatorum. Midwives are instructed, examined, and licensed by the city board of health. This, together with the use of the prophylactic packages and the activities, more especially of the colored nurse among the midwives of her race, has been instrumental in decreasing the amount of infantile tetanus and ophthalmia neonatorum to a very marked degree.

The board of health furnishes to the dairy inspector an automobile as well as a machine, which is used jointly by the health officer and the chief sanitary inspector. For mosquito extermination there are furnished two wagons and two mules. Employees of the department ride free on the street cars.

The collection and disposal of rubbish are under the control of the board of public works. An ordinance requires that householders place their rubbish in a proper receptacle and specifies that no garbage may be mixed with it. There is no provision made, however, for the collection of garbage. The householder is required to dispose of this refuse as best he may, and it is usually collected by the farmers who feed it to the hogs. As a result of this unfortunate condition the householder frequently surreptitiously places his garbage in the rubbish can.

The rubbish is used for filling in low places, a legitimate and economical procedure provided the rubbish contains no garbage.

The city should make provision without delay for the collection and disposal of garbage according to the methods pursued in modern cities, requiring the householder to have two cans, one for garbage

and one for rubbish, the garbage to be disposed of by means of incineration or in a modern reduction plant. The collection of garbage and rubbish can be made on alternate days and if the wagons are properly constructed they may be used to collect both rubbish and garbage.

The city water supply is from flowing wells. It is treated with hypochlorite because there has been found evidence of contamination derived either from seepage through cracks in the aeration reservoir or from the dust of the streets, the reservoir being uncovered.

The city of Jacksonville has an efficient health organization. It should be pointed out, however, that the number of sanitary inspectors employed as compared to nurses, keeping in mind the relative importance of the work performed, is out of all proportion and unnecessary. It would be better to reduce the number of sanitary inspectors and employ more nurses.

Miami.—The city board of health employs a health officer who is permitted to do some private practice. He has under him a milk inspector who is a veterinarian, a plumbing inspector, and a clerk.

Garbage is collected by the city health department. Cans are furnished free of charge to each householder. They are collected and taken to the incinerator, dumped, flushed, and steamed. A clean can is substituted for the one collected. The system is highly satisfactory and carried out efficiently.

Milk inspection is thorough and has resulted in a great improvement in the dairies supplying milk to Miami.

The collection of birth and death reports seems to be satisfactory, but the city is not in the registration area.

The water supply is secured from deep wells, but has showed some evidence of pollution and is therefore being treated with hypochlorite of lime.

The city is sewered, the sewage emptying into the bay untreated.

Laboratory work is performed by a branch laboratory of the State board of health.

A visiting nurse employed by the relief association cooperates with the health department.

The other cities visited had such poor local health organizations that it is not thought worth while to attempt any description.

Except in Key West the water supplies are all derived from deep wells. In Key West rain water is used, attempts to drive wells having been unsuccessful.

With the exception of Key West all the cities visited were sewered in whole or part. In Tampa, sewage is treated by three Imhoff tanks located in different parts of the city. In Tallahassee it is treated by septic action and percolated through coke beds. In both Tampa and Pensacola provision is made for milk inspection. In the former city,

however, inspection is done by the division of food and drugs, which is not a part of a health organization.

A word should be said relative to the division of sanitation in Tampa. The chief of this division is in charge of street cleaning and the collection of garbage and rubbish. He takes great interest in the work and manages affairs efficiently and economically, but in order to keep up with the growth of the city he requires an increased appropriation.

Garbage is incinerated, there being four incinerators of two units each, with a capacity of 100 tons. There is collected an average of 48 tons of garbage per day though the collection at times may greatly exceed this amount. To incinerate costs about 38 cents per ton. No figures were available for the cost of collection. The division of sanitation employs sanitary inspectors.

PUBLIC HEALTH ENGINEERING.

The State board of health has never established any bureau of public health engineering nor has it ever had in its permanent employ a public health engineer. Assistance has been obtained from the outside from time to time as the occasion arose and the service paid for as required.

Requirements of laws.—The laws relating to public health engineering are summarized as follows: It is prohibited to deposit any rubbish, filth, or other deleterious substances liable to affect the health of persons, fish, or live stock in any of the waters of the lakes, rivers, streams or ditches in the State. For violation there is provided a fine of not to exceed \$500. The enforcement of the law is placed with the State board of health.

It is prohibited to use any cavity, sink, driven or drilled well for the purpose of draining any surface water or discharging any sewage into the underground waters of the State, without first obtaining a written permit from the State board of health. For violation there is provided a fine of \$25 for each offense or imprisonment not to exceed one month or both. Each day during which the act is violated constitutes a separate offense.

It is unlawful for any person to maintain a surface closet within incorporated limits, which is not fly proof in construction, and is not built in conformity with plans approved by the State board of health.

For violation there is provided a fine of not to exceed \$10.

The State board of health is authorized "to employ or engage the services of a sanitary engineer * * * whenever in the opinion of the State health officer the necessities of sanitation in and about the State may require an expert opinion and decision in regard to construction of sewers, drainage of a sanitary character, etc." The law further provides that the sanitary engineer "shall only be employed at such times and such periods as in the judgment of the State health officer, his expert services may be required."

Discussion.—It has been suggested on several occasions to retain the services of an engineer or firm of engineers in private practice who could act, when needed, for the State board of health. To put the proposed arrangement into effect a retaining fee would be necessary.

and actual work paid for at the rate of \$25 a day and expenses. The scheme would not be satisfactory, would not be consistent with the practice in modern health departments and would prove in the end an expensive procedure. There are so many communities in the State with problems of water supply and sewage or garbage disposal, which for their solution require the advice of an expert, that the services of a full-time official could be employed to great advantage. His duties would be to study thoroughly the conditions in a community and to inform the authorities what should be done to best meet the requirements; to estimate the probable cost of construction; to approve all plans presented by the constructing engineers employed by the locality; and by advice and supervision to determine that the locality is getting all that it is paying for. It is entirely too common to find a small city supplied with a sewerage or water system entirely inadequate for the purpose, solely because sound advice was not obtained beforehand.

The legislation relating to the disposal of sewage and maintenance of the purity of water supplies is very meager, but even with little authority the State engineer could render services of inestimable value to the locality because of the advice he would be able to give, at the expense of the State. In time, after the establishment of a bureau of public health engineering and the employment of a sanitary engineer, it would be advisable to give him assistance; as, for instance, a draftsman and a water and sewage analyst.

DISSEMINATION OF INFORMATION.

The activities carried on for the dissemination of information on the subject of public health, including publications and exhibits, might well be considered more highly specialized than any other work of the State board of health. During the year 1915 there were spent for educational purposes \$13,408.11. Funds spent in this way may be considered money well invested.

Requirements of law.—The law relating to the subject of education along public health lines is summarized as follows:

The State board of health is authorized to disseminate information concerning the cause, nature, and extent of communicable disease and may arrange for free lectures and health exhibits and the publication and distribution of bulletins, pamphlets, circulars, or other printed matter.

The State board of health is further authorized to send a public health exhibit in a railway car or cars over the different lines of railroad in the State and to give free illustrated lectures to the people. The State health officer may employ a sufficient number of assistants to carry on the work.

The railroad companies may haul the cars free of charge and furnish free transportation to the necessary number of employees.

The State health officer is authorized to accept any donation and contribution that may be made by any local government to assist in defraying the expense of the exhibit in the locality.

The personnel of the State board of health at present engaged in strictly educational activities, and their salaries, are as follows:

Exhibit:

1 assistant to the State health officer.....	\$1, 200
1 cook.....	520
1 porter.....	520
1 engineer.....	520

Publications:

1 publicity agent (press service, part time).....	300
	<hr/> 3, 060

Publications.

Monthly bulletin.—There is a bulletin issued monthly and distributed to some eight thousand people, including physicians and other citizens, to newspapers of the State, and officials in Florida and other States. This bulletin contains statistics on health matters derived from the reports received by the division of "vital statistics," and original or other articles pertaining to the prevention of disease and personal hygiene. The bulletin is full of excellent material, but like other publications of its kind, unfortunately reaches but few of those people most in need of instruction.

Pamphlets.—A large number of publications of this nature have been issued from time to time by the State board of health, and cover a wide range of subjects, including hookworm disease, malaria, mosquitoes, flies, smallpox, Imhoff tanks, antityphoid vaccination, tuberculosis, vital statistics, water purification, measles, child welfare, ophthalmia neonatorum, typhoid fever, and preventive medicine in general. Some of these pamphlets are original and some reprints from other sources. All are worthy of perusal and make a valuable addition to a library of popular information on public health subjects.

These pamphlets are sent to the same individuals who receive the monthly bulletin but in addition are distributed from the exhibition train, as well as by the field officials of the State board of health during their various trips. In this way they have a much wider circulation and reach a more varied population.

Circulars of information.—Circulars of information have been published on the subjects of malaria, consumption, hookworm, typhoid fever, pellagra, whooping-cough, flies, and sanitary privies. These circulars are small and contain in a few words the essentials of the subject. They are intended more especially for general distribution from the health train and by the public health nurses in their house to house visits, supplementing instructions given verbally.

Posters.—A number of instructive posters have been issued from time to time by the State board of health from original or other

sources. Some were intended for posting in public places while others have been used exclusively for reproduction in the various publications of the board and for exhibition on the health train. They are all drawn in the health department by an artist employed as the occasion arises.

Press service.—There is written each week a popular article on some subject of public health which is sent gratis to every newspaper in the State, with the request that it be published in the interest of the public health. These articles are composed by a part-time employee of the State, of long experience in newspaper work, and are therefore written in the style that may be appreciated by the general reader.

Exhibits.

In the past the public-health exhibit of the State board of health was sent from place to place by freight or express. This necessitated the packing and unpacking of the exhibit each time it was shown, a cumbersome and expensive procedure and one limiting the number of localities visited. During the last year, however, three cars were purchased from the Pullman Company and remodeled, one as a living car and two as exhibit cars. The railroads of the State have agreed to haul this train from place to place free of charge, together with the necessary number of attendants. This arrangement was made possible through the action of the State legislature and the Interstate Commerce Commission.

The living car, designed to house the officials in charge of the exhibit, is well planned and contains a kitchen, dining room, four bed rooms, and an office and living room. In this car there are two bath rooms and toilets, with a wash basin and dental lavatory in each bedroom. Pressure tanks are provided for storing the water supplied to the different plumbing fixtures.

The second car contains bunks, toilet and bathing facilities for the train crew, a gasoline engine, and an electric generator which furnishes all of the light and power used on the train. About two-thirds of the space in this car is utilized for the exhibition of models, charts, etc., and projecting apparatus. A compartment has been rendered fireproof and contains the moving-picture machine. The screen is erected outside of the car when required and the picture projected through the open window.

The third car, except for a small compartment containing a public toilet, is devoted entirely to exhibits, especially charts and panels containing in terse phrases the essentials of preventive medicine.

Each car is screened against flies and mosquitoes and provided with electric fans, so that adequate ventilation may be secured.

Beneath each toilet there is a screened can, so that pollution of the tracks, especially at sidings or stations, may be prevented. These cans are cleaned by the laborers employed by the railroads at the various stations. Journals are inspected by the regular car inspectors, and in most instances both ice and water are furnished by the railroad company free of charge.

Among the models shown are the "Flies' air line," a sewage-disposal plant; the way in which underground contamination of water supplies may occur; an open-air house for the tuberculous; "The contrast room illusion;" the comfortable infant; and others. These models will be added to from time to time until all available space is filled.

Practically all of the towns of Florida have railroad facilities, so that by reason of the cooperation of the railroad officials this train will be able to reach every community. It is, in fact, the people of the small community that are most in need of instruction, and it is satisfactory to note that they have shown great interest in the exhibit, many times even 90 per cent of the population taking advantage of the opportunity to see it.

The official of the State board of health in charge of the exhibition train is assisted by the various district health officers who accompany the train during the time that it remains within their respective districts.

It has been thought more businesslike and satisfactory to all concerned to operate the train on regular schedule, visiting each community in a methodical manner. Many requests have been received by the State board of health to send the exhibition train to various places during county fairs and the like, but compliance with these requests would not only interfere with the schedule, meaning long, irregular trips, but would impose an extra burden on the railroad companies as well.

Discussion.

The activities on the part of the State health officer for the education of the people along lines of public health and sanitation are excellent and should, in time, result in great good. The work is of such great importance that it is deemed worthy of a special place in the health organization, and it is therefore suggested that a bureau of public health education be formed with a full-time chief to have complete charge of all matters pertaining to publications and exhibits.

The criticism that so many of the people in need of instruction do not read or even see the published articles is probably too true.

It is in fact almost futile to attempt to teach the present generation, and it is thought that greater progress would be made if special

instruction could be given to the younger generation. It is therefore suggested that in order to reach the children the State board of health publish semimonthly articles on preventive medicine to be used in the public schools as texts for the lessons on hygiene and sanitation. The hearty cooperation of the teachers in the public schools would be necessary to insure success.

HEALTH SUPERVISION OF SCHOOLS.

Requirement of laws.—During the 1915 session of the legislature a law was enacted providing for a health supervision of school children which was placed for its enforcement in the State board of health. It is summarized as follows:

All school children must be examined as to their physical condition at least once during each school year. To accomplish this, the State board of health is authorized to promulgate the necessary regulations.

County physicians must act as medical inspectors of school children, and where there is no county physician, the county commissioners must appoint a physician for that purpose. The State board of health is required to pay for the services rendered by county and other physicians appointed to carry on the work. The law also specifies that no one school physician may have more than 2,500 school children under his charge. The provisions of the act do not affect cities of over 5,000 inhabitants where a system of medical inspection of school children has already been established by the city board of health, provided that the authorities carrying on the work adopt the forms prescribed by, and make full reports to, the State board of health.

In addition to the above, a law requires that all school buildings, public or private, be provided with either water or surface closets, having separate compartments for each sex. Where water closets are not practicable, surface closets must be fly proof and constructed in conformity with plans approved by the State board of health. For failure to install the proper closets there is provided a fine of not to exceed \$50.

Methods of procedure.—It has been estimated by the department of public instruction that the total enrollment of pupils for the school year 1915-16 is 191,240. Of this number 12,190 are in the high schools and 179,050 in the lower grades. To examine these children according to law, there would be required approximately 76 physicians. As the act did not carry with it any appropriation it is impracticable for the State board of health to pay salaries commensurate with the importance of the work. However, as some action had to be taken it was decided that reimbursement be made to the extent of 10 cents for each child examined. Even this small sum would mean an annual expenditure of approximately \$19,000 for medical services alone.

Regulations were promulgated by the State board of health to carry out the provisions of the law, and the medical inspection of school children commenced about the first of the present year, 1916.

The examining physician is required to record the results of the examination of each child on a separate card and file the same in his

office. This card follows the child throughout the period of school life.

When the physician has completed the examination of the children in his district he submits to the State board of health a report showing the number of pupils examined, the name of the school, the nature of the defects found, the number of pupils vaccinated, and other pertinent information.

Discussion.—The law as passed was not recommended by the State board of health and does not seem to have been framed with a full understanding of the requirements for a State-wide health supervision of school children. In the first place the most important factor in a system of health supervision, the school nurse, has been overlooked; also the fact that the State board of health has in its employ seven medical men whose services could be used without extra expense for the examination of children in the small municipalities and rural districts. As in other health matters the health departments of the larger municipalities should be under the obligation of assisting the State by employing their own medical inspectors.

Better results would accrue if the funds of the State board of health devoted to school work were expended in the employment of more nurses. The nurse can detect not only many defects in the children which it may or may not be necessary to refer to the physician, but she can go further and follow up the case into the home. A medical inspection without a follow-up system is useless.

Again, the law makes it necessary to examine all children at least once each year. This matter should be left to the discretion of the examiners. As a usual thing pupils of the high school do not require an examination. Children found without defects at the first examination usually do not require a reexamination.

The payment of expenses has been placed with the State board of health, although that board is not permitted to select the examining physicians.

While the law is very defective, it is a step in the right direction and will result in securing valuable statistics proving the great necessity for some health supervision over the school child.

It is thought highly desirable to amend the law at the next meeting of the legislature, so that the district health officers now employed by the State board of health may perform much of the medical work, the nursing staff of the State board of health be greatly increased, and certain other changes be made as already suggested.

As soon as practicable it would seem advisable to carry on work along the lines of child welfare, and for this purpose a bureau of child welfare should be organized into which could be incorporated the health supervision of schools and the supervision of midwives.

VETERINARY DIVISION.

The veterinary work of the State of Florida is performed by an organized division of the State board of health. The personnel of the veterinary division and their respective salaries at present are as follows:

Veterinarian of the State board of health.....	\$2,000
1 stenographer.....	720
1 assistant veterinarian.....	1,800
1 live-stock agent.....	1,500
1 live-stock agent (part time).....	300
Total.....	6,320

In addition to the above there are appointed a number of veterinary inspectors in different parts of the State who receive compensation from the owners of animals inspected. Their duties consist mainly of a supervision over the shipment of horses and mules, with special reference to the presence of glanders.

The work of the veterinary division is concerned with all that its name implies, but more especially with tick eradication, hog cholera, glanders, and tuberculosis.

The problem of the eradication of Texas fever has been a serious one in Florida, and this disease has greatly interfered with the growth of the cattle industry.

The veterinary division of the State board of health has been energetic in its efforts to secure tick-free zones from which shipments of cattle might be made in compliance with quarantine regulations of other State and Federal authorities. To accomplish these results the hearty cooperation of the owners and the authorities in the locality is required. Dipping vats must be built by private capital and regulations looking toward the eradication of the disease adequately enforced. So far, but two counties of the State, Dade and Broward, have eradicated the tick and will soon be declared tick-free. There is, however, a constantly increasing interest taken in this work, resulting in the construction of more dipping vats in various parts of the State. The State veterinarian has delivered a number of addresses before gatherings interested in the subject of tick eradication.

The eradication of hog cholera has also been a serious problem requiring a large expenditure of money for hog cholera serum, which according to an act of the legislature must be issued free of charge to farmers by the State board of health.

Horses and mules are not permitted to enter the State without a certificate to the effect that they have been given the mallein test and are free from glanders. In this as well as in other matters the railroad companies give their hearty cooperation.

The reimbursement for horses and mules killed within the State on account of glanders is allowed by law in a sum not to exceed \$75. The value is determined by a board of three members, consisting of the State veterinarian or his agent, a person appointed by either of them, and one appointed by the owner.

Bovine tuberculosis is not at present a serious problem within the State, due perhaps to the small number of cattle distributed over a wide territory and the open-air life, nor has the veterinary division carried on very extensive work as regards the tuberculin testing of cattle; it may be done upon request. Certain of the cities have enacted ordinances requiring that this test be made in the milch cows and in carrying out this ordinance may receive State aid if they desire it. A law prohibits the importation of cattle, except for immediate slaughter, unless the tuberculin test has been applied and they have been found free from tuberculosis.

CONTROL OF THE MILK SUPPLY.

No State body is at present exercising any supervision over the milk supply, nor are there any State laws or regulations app'ying to the subject, except that clause in the pure-food law which defines a chemical standard for milk. As has already been pointed out, some of the municipalities have employed a milk inspector for the inspection of milk-producing farms in the locality and the milk after it has arrived within corporate limits. This important field of public-health work should be immediately taken up by the State board of health with a view towards maintaining a sanitary condition in milk-producing farms not at present being supervised by local authorities and improving the cleanliness of the product. For the purpose there should be established in the veterinary bureau a division of milk inspection. This would necessitate the employment of inspectors to carry on the field work. Such men should be trained in dairy farm inspection. The score card used by the United States Department of Agriculture may be adopted, and regulations providing for the maintenance of cleanliness on dairy farms should be promulgated by the State board of health.

As before stated, the inspectors at present employed for general sanitary work might be transferred to the milk-inspection division as dairy-farm inspectors. It must be kept in mind that the men employed in this class of work should be intelligent and must have a personality permitting them to associate with the farmer on amicable terms, for, after all, the inspector is essentially an educator and the necessary control amounts to a friendly cooperation between him and the milk producer. The State board of health is already well equipped to handle the veterinary side of the question.

THE TREATMENT OF CRIPPLED CHILDREN.

In 1911 the State legislature passed a law authorizing the State board of health to erect a hospital for, and to furnish free treatment to, indigent crippled children of the State. To provide the necessary money the legislature authorized the use of \$20,000 to be paid out of funds already available to the State board of health. As the State board of health was already making use of its funds for activities already under way the hospital in question was not built. However, a provision of the law permitted the State board of health to care for crippled children in an institution already established until the number of applicants for treatment would warrant the erection of a hospital for the purpose. Accordingly, arrangements were made with two Jacksonville institutions to furnish the necessary care, and the physician furnishing treatment was last year placed on the pay roll of the State board of health at a salary of \$1,500 a year.

The work involved is essentially charitable in nature and has only indirect bearing on the public health.

MISCELLANEOUS.

Hotel inspection.—Previous to the year 1913 the inspection of hotels was one of the duties of the State board of health. Since that time, however, the legislature has created the office of hotel commissioner and enacted a comprehensive law for the maintenance of sanitation in hotels, and providing for the safety and comfort of the guests. The hotel commissioner has promulgated a number of regulations to carry out the provisions of the act. This law is similar to hotel inspection laws in other States, and will not be summarized here.

Abatement of nuisances.—It is made the duty of the State health officer, upon request of the proper authorities or three responsible resident citizens, or whenever it may be deemed necessary by the president of the State board of health or the State health officer, to investigate sanitary conditions of any city or town or place in the State and if a "sanitary nuisance" be found, it becomes his duty to notify the proper persons to remove or abate the nuisance within 24 hours or within such time as he may deem reasonable, and if such notice is not complied with, the State health officer is authorized to remove or abate it and charge the expense against the person committing the nuisance.

Certain other provisions of law prohibit the keeping of hogs within the limits of any city or town of over 2,000 inhabitants; regulate the maintenance of slaughterhouses; prohibit the importation or sale of diseased animals, and the depositing upon any premises, streets, etc., of any offensive substances, as, for instance, stable manure, decayed animal or vegetable matter, etc.

In addition there are certain provisions of law directed against noisome odors, or noxious gases, which are antiquated and need not be summarized in this report.

The licensing of embalmers.—The State board of health has promulgated regulations relating to burials, disinterments, and the transportation of dead bodies. In order to ship a body it must be embalmed. This can be done only by an undertaker licensed by the State board of health. This license is granted after the undertaker has passed an examination before a board composed of the State health officer, one of the assistants to the State health officer, and the chief bacteriologist of the State board of health. The examination is held in the presence of a representative of the Florida State Funeral Directors' and Embalmers' Association.

The regulations promulgated on the subject are similar to those in other States and will not be summarized here.

RECEIPTS AND EXPENDITURES.

The State board of health of Florida is supported by a tax levy of one-half mill, which gave it an income in 1915 of \$142,930, and which will amount in 1916 to approximately \$146,285. During the year 1915 there was spent in the support of the health organization the sum of \$157,979.02. It therefore required the entire income for the year plus a large part of the balance remaining from the previous year, to defray the necessary expenses. The amount which the State board of health receives through the tax levy appears to be a generous income until it is understood that out of it must be paid certain expenses which are ordinarily not incurred by a State health department, but which are usually paid for out of funds at the disposal of other State or local authorities. In Florida, however, the payment of such expenses has been imposed upon the State board of health by the legislature. These unusual expenses are as follows:

Veterinary division of the State board of health.....	\$29,339.28
Maintenance of isolation hospitals and reimbursement for smallpox cases..	4,277.64
Reimbursement for birth and death certificates.....	2,421.15
Treatment of crippled children.....	7,187.75
Total.....	43,225.82

If this amount be deducted from the yearly expenditures, there is left \$114,753.20, which figure represents more closely the cost of health activities in Florida as compared to those of other States.

The expenditures of the State board of health have never exceeded the funds at its disposal. There has been, in fact, at the end of each year, a balance available for the payment of expenses incurred during the coming year. This balance, however, is fast becoming less and less with the increasing activities of the health organization. It is

Statement of expenditures of the State board of

	Board of health.	Administration.					Epidemiological.
		Office of the secretary.	General expenses.	Building and grounds.	Clerical.	Library.	Field medical officers.
Ammonia for ice machines							
Animal food							
Animals laboratory							
Antitoxins and vaccines							\$1,782.95
Attorney's fees			\$25.00				
Books, periodicals, and reprints			30.00			\$380.34	
Charts, maps, plans, etc.		\$2.25					52.20
Containers, mailing outfits, etc.							
Drugs, chemicals, and disinfectants							
Dues to societies and associations							
Electrical supplies			20.00				
Emergency services			11.75				
Express, freight, and drayage			119.14	\$23.30			1.90
Furniture							
Gasoline							
Glanders, reimbursement for							
Grounds, care of				263.18			
Heat, water, and electricity				396.39			
Hospitals, maintenance of patients including supplies and apparatus							
Household furnishings and supplies							
Installation of equipment							
Insurance, buildings, and fixtures			5.00				
Laboratory supplies							
Laundry			13.50				
Mimeograph and repairs			4.50				
Miscellaneous	\$73.25		80.80	25			12.00
Models and repairs							
Moving-picture machine and films							
New construction				176.00			
Office supplies			43.55				5.95
Pellagra treatment							132.01
Photograph cuts and X-ray plates			122.55				
Press clippings						60.00	
Printing			1,060.67			4.50	29.24
Registrars' fees							
Reimbursement care of indigent smallpox patients							
Repairs and alterations				173.17			
Repairs to apparatus							
Rent							252.00
Salaries	630.00	4,999.92		954.00	\$5,090.11		16,933.08
Scientific instruments and apparatus							
Screening				2.50			
Signs							13.00
Stamps, post-office box			540.91				
Stationery	39.65		483.90				28.55
Stereomograph and slides							
Telegraph and telephone			486.30				
Transportation indigent smallpox patients to isolation hospitals							
Traveling expenses	207.40	2,314.90					2,260.28
Typewriters and repairs		40.05			177.21		
Vaccinations							
Total	950.30	7,357.12	3,047.57	1,989.39	5,267.32	444.84	21,503.16

health of Florida for the year ended Dec. 31, 1915.

Epidemiological.		Health super- vision of schools.	Sanita- tion.	Educa- tion.	Vital sta- tistics division.	Treat- ment of crippled children.	Veteri- nary division.	Labora- tories.	Total.
Public health nurses, in- cluding antitu- berculosis activities.	Expenses account smallpox, including isolation hospitals.								
								\$14.50	\$14.50
								134.89	134.89
								48.95	48.95
	\$975.00						\$20,456.80		23,214.75
\$2.40				\$236.55				1.35	25.00
41.90		\$17.05		290.50			18.18	.75	650.64
				314.70			115.40	294.30	422.83
									724.40
	114.06			1.00			11.30	546.75	673.11
									20.00
				95.09				12.21	119.05
	84.00			223.75		\$93.00	56.00	4.55	484.60
	.26	5.64		675.24	\$1.17		243.25	289.71	1,336.31
				188.23				917.33	1,105.56
	10.05			12.85					22.90
							1,075.00		1,075.00
	42.55			37.02				18.60	
								788.44	1,264.40
	844.04					5,826.50			6,670.54
				446.31					446.31
				85.63			44.04	80.92	210.59
	119.65			515.00				215.10	854.75
				16.93			20.15	1,721.91	1,742.06
								95.11	125.54
	28.71		\$3.00	9.85			13.64	54.75	4.50
				194.00					276.25
									194.00
				838.80					838.80
		.50		28.55	16.95			13,408.00	13,584.60
									95.50
									132.01
7.12				181.61		15.00		3.10	329.38
22.75		368.05	15.75	4,930.18	925.67	3.25	90.65	165.25	60.00
					2,421.15				7,615.96
									2,421.15
	467.65								467.65
	15.45			97.95			4.33	143.44	434.34
				.50				101.33	101.83
				105.00					597.00
5,000.00	2,164.00		3,400.00	1,285.00	1,655.00	1,250.00	5,804.27	20,893.43	70,058.81
								1,430.69	1,430.69
	96.81								99.31
								3.00	16.00
50.00	1.00	808.00		611.90	660.00		200.00	423.53	3,295.34
49.50				48.55	145.51		51.67	157.05	1,004.38
				587.43					585.43
	188.91			5.66				323.65	1,004.52
	98.50								98.50
3,143.61			10.00	1,261.30	176.24		1,073.57	645.84	11,083.14
				83.03	93.15		61.03	13.00	467.47
	2.00								2.00
8,317.28	5,252.64	1,199.24	3,428.75	13,408.11	6,094.84	7,187.75	29,339.28	43,191.43	157,979.02

true that the size of the State board of health fund increases annually, but its growth is slow and does not keep pace with the rapid expansion of a modern health department in a State of the importance of Florida. The time has therefore arrived when the State board of health feels that it must leave undone certain necessary things in fear that the balance sheet may show a deficit.

While there is no desire to minimize the importance of the work carried on by the veterinary division it is obvious that it bears little relation to the conservation of the public health. It is to a large extent an economic measure. During the year it cost to maintain this division \$29,339.28, a little less than one-fifth of the amount required to support the entire health organization. For hog-cholera serum and vaccine alone there was expended \$20,456.80, and hog cholera is a malady which in no way jeopardizes the health of man. The latter remark might be made as well for Texas fever, a disease not transmitted to man.

Admitting the necessity for the prevention of disease among the lower animals and its value to the farmers of the State, the fact is nevertheless deplored that work of this nature must be paid for out of funds intended for the maintenance of the health of human beings. A special appropriation of \$30,000 from the legislature for the prevention of disease among the lower animals would make available to the health department money that could well be spent for strictly legitimate public health purposes.

This expedient would permit the State board of health to enlarge the scope of its present work and take on increased activities until the time arrives when the State health fund has reached that size which will provide an adequate amount to defray all expenses.

In lieu of a special appropriation to support the veterinary division, it is suggested that taxable property might be assessed at a figure more nearly approaching its actual value.

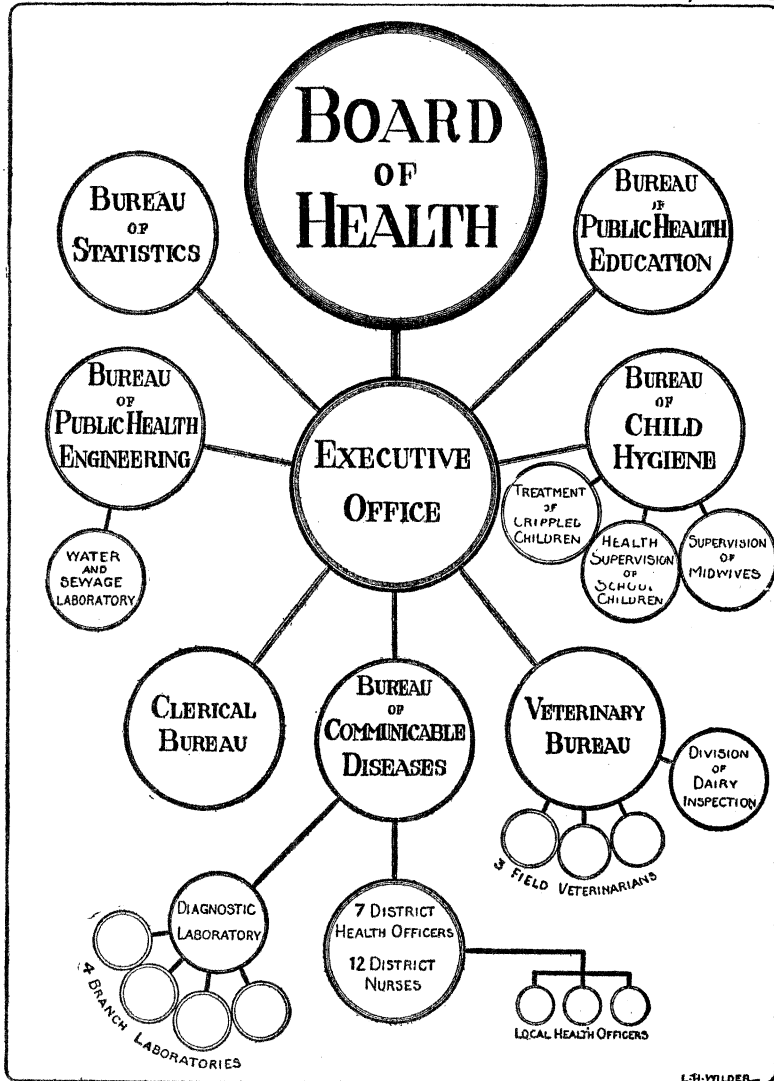
It must be emphatically pointed out that the counties are at present spending little or nothing in the interest of public health, notwithstanding that they are under the obligation to assume a share of the expense incurred in combating disease. They should be required to take over and maintain the isolation hospitals and assume the expense of caring for patients suffering with communicable diseases, smallpox included.

The accompanying table shows the expenditures of the health department during the year 1915 by activities and items of expenditure.

RECOMMENDATIONS.

As a result of the foregoing study it may be concluded that the State board of health is now engaged in many important activities, but that certain changes are desirable in order to increase efficiency

SCHEME OF REORGANIZATION SUGGESTED FOR THE STATE BOARD OF HEALTH, FLORIDA.



U.S. PUBLIC HEALTH SERVICE.

and to secure quicker and more certain results. To assist in bringing this about the following recommendations are made:

1. That the designation of the State board of health be changed to the State department of health.

2. That the State department of health be divided into the board of health, the executive office, a bureau of communicable diseases, a bureau of public health engineering, a bureau of public health education, a bureau of statistics, a bureau of child hygiene, a clerical bureau, and a veterinary bureau.

3. That the board of health consist of seven members to hold office for five years and to be so appointed that there will be but one change each year.

4. That a full time chief be placed in charge of each of the bureaus.

5. That the chief of the bureau of communicable diseases be responsible for the work of district and local health officers and public health nurses, the collection of morbidity reports, the administration of the laboratories, and in general the activities concerned with the control of preventable diseases.

6. That the chief of the bureau of public health engineering be granted advisory and supervisory control over the domestic water supplies, drainage, the disposal of sewage, and garbage and trades wastes within the State, and that there be established in this bureau a water and sewage laboratory.

7. That the chief of the bureau of public health education be made responsible for all of the educational activities of the department, including publications, exhibits, and lectures.

8. That the chief of the bureau of statistics be made responsible for the registration of births, deaths, and marriages, and the statistical compilation and tabulation of all data for the department.

9. That the chief of the bureau of child hygiene be made responsible for the activities concerned in child welfare, including pre and postnatal nursing, the health supervision of schools, the supervision of midwives, and the treatment of crippled children.

10. That the chief clerk be designated as chief of the clerical bureau to have control of the clerical force of the department and supervision over the records, property, and accounts.

11. That the activities of the veterinary bureau be the same as they are now with the addition of the inspection of dairy farms.

12. That the assistant to the State health officer who is not at present in charge of a district, but employed in the State at large, be placed in the west central district, vice the bacteriologist resigned, and that there be employed a bacteriologist who need not be a physician, for work in the branch laboratory located in that district.

13. That the district health officer be made responsible for the enforcement of all public health laws and the carrying on of the field activities of the State board of health within his district and that for purposes of administration he be given supervision over the public health nurses and the branch laboratory located in his district.

14. That in order to make the work of the health department more effective the district health officers be required to be more active in the field and to carry on more thorough and intensive studies relative to the conditions of their districts and the diseases existing therein.

15. That district health officers be prohibited from engaging in the practice of medicine or any other business that will interfere with their official duties.

16. That the nursing force be added to from time to time as funds will permit so that eventually the number will be such that each may have a small district and be enabled to carry on all of the duties required of a public health nurse.

17. That the district health officers and public health nurses before they receive an appointment be required to pass a competitive examination.

18. That both medical officers and nurses be given a six months' probationary appointment in order to determine their adaptability for the work required.

19. That the district health officers at their first appointment receive a salary of \$1,600 a year with a regular increase at stated intervals at the discretion of the State board of health.

20. That the public health nurse be started on a salary of \$75 a month with a regular increase at stated intervals at the discretion of the State board of health, and that she be given a course of instruction before entering upon her duties.

21. That the position of the county agent be abolished and the county included in that district to which it logically belongs.

22. That every effort be made to procure adequate health departments in those larger cities where they have not already been provided for, and that in cities with a population of 5,000 or less health inspectors trained in sanitary science be employed to give full time to their duties and work under the supervision of the district health officer.

23. That the State board of health provide the means to give training and instruction to those men who are to be appointed in the above capacity.

24. That there be called annually by the State health officer a conference of district and local health officers and bacteriologists to consider public health matters in the State of Florida.

25. That, in accordance with the vital statistics act, there be promulgated regulations providing for the reporting of sickness that the prevalence of disease may be known and that these regulations conform to the model law proposed by the United States Public Health Service.

26. That the act providing for the registration of births and deaths be put into effect without delay.

27. That a comprehensive law be enacted making it compulsory on the part of all persons interested to have plans for proposed installations of water supplies, sewage, and refuse disposal systems, approved by the State department of health. That the State department of health be empowered to require any changes or extensions in already existing installations that may be necessary to insure safe water supplies or proper sewage or refuse disposal systems; or to order the installation of water-supply and sewage or refuse disposal systems in the absence of same. That the State department of health have the power to close, or to prevent the use of water from, any well, spring, or other source that in its opinion is dangerous to health, or to require the filling or draining of places where there is any accumulation of water, breeding of mosquitoes, or other condition dangerous to health.

28. That the law providing for the medical inspection of school children be amended as suggested in the body of this report.

29. That certain of the antiquated laws relating to the public health be amended or repealed.

30. That more comprehensive regulations be promulgated by the State board of health for the purpose of controlling the preventable diseases.

31. That the officials of the State department of health be full-time men with the exception of the assistant in charge of the treatment of crippled children, the live-stock agents, and the members of the State board of health, as already provided for.

32. That the methods of keeping accounts be changed so as to allow an accurate determination of the actual cost of any bureau or division or any special work at any time.

33. That the isolation hospitals at present being maintained by the State board of health be transferred to the counties and that the law requiring the State board of health to pay for the care of patients suffering with smallpox, yellow fever, and cholera be repealed.

34. That there be an appropriation by the State legislature in the sum of \$30,000 to support the veterinary bureau of the State board of health, and that this amount be reappropriated until such time as the State health fund has reached a size that will enable the State department of health to carry on all of its activities adequately without the assistance of a special appropriation from the legislature.

35. That the field staff be furnished with automobile transportation as soon as the funds of the department will permit.

36. That a popular bulletin on preventive medicine to be used especially for instructing the children in the public schools be issued monthly or oftener by the State department of health.

37. That a sanitary code be written by the health department for adoption by the various municipalities not already provided with adequate ordinances for the maintenance of the public health and that this code be promulgated as regulations of the State board of health.

PLAGUE-PREVENTION WORK.

CALIFORNIA.

The following report of plague-prevention work in California for the week ended May 13, 1916, was received from Surg. Boggess, of the United States Public Health Service, in charge of the work:

SAN FRANCISCO, CAL.

RAT PROOFING.

New buildings:	
Inspections of work under construction.	218
Basements concreted (square feet, 47,500).....	40
Floors concreted (square feet, 28,500)...	9
Yards, passageways, etc., concreted (square feet, 18,834).....	85
Total area of concrete laid (square feet).	94,834
Class A, B, and C (fireproof) buildings:	
Inspections made.....	140
Roof and basement ventilators, etc., screened.....	615
Wire screening used (square feet).....	3,178
Openings around pipes, etc., closed with cement.....	1,795
Sidewalk lens lights replaced.....	3,178
Old buildings:	
Inspections made.....	510
Wooden floors removed.....	41
Yards and passageways, planking removed.....	18
New foundation walls installed (cubic feet).....	8,183
Concrete floors installed (square feet, 20,973).....	29
Basements concreted (square feet, 16,600).....	22
Yards, passageways, etc., concreted (square feet, 31,167).....	69
Total area concrete laid (square feet)....	68,740
Floors rat proofed with wire cloth (square feet, 6,295).....	6
Buildings razed.....	12
New garbage cans stamped approved.....	375
Noisances abated.....	302

OPERATIONS ON THE WATER FRONT.

Vessels inspected for rat guards.....	16
Reinspections made on vessels.....	20
New rat guards procured.....	13
Defective rat guards repaired.....	12
Rats trapped on wharves and water front ..	44
Rats trapped on vessels.....	41
Traps set on wharves and water front	128

SAN FRANCISCO, CAL.—Continued.

RAT PROOFING—continued.

Traps set on vessels.....	252
Vessels trapped on.....	19
Poisons placed on water front (pieces).....	3,600
Poisons placed within Panama-Pacific International Exposition grounds (pieces)...	33,600
Bait used on water front and vessels—bacon (pounds).....	6
Bread used in poisoning, water front (loaves).	9
Pounds of poison used on water front.....	3

RATS COLLECTED AND EXAMINED FOR PLAGUE.

San Francisco:	
Collected.....	458
Examined.....	374
Found infected.....	None.
Oakland:	
Collected.....	10
Examined.....	10
Found infected.....	None.

RATS IDENTIFIED.

Mus norvegicus.....	213
Mus rattus.....	87
Mus alexandrinus.....	112
Mus musculus.....	46

SQUIRRELS COLLECTED AND EXAMINED FOR PLAGUE.

County.	Collected.	Examined.	Infected.
Santa Clara.....	182	182	None.
San Mateo.....	115	115	None.
San Benito.....	418	418	None.
Merced.....	598	598	None.
Santa Cruz.....	153	153	1
Monterey.....	327	327	None.
Contra Costa.....	915	915	2
Stanislaus.....	248	248	None.
Alameda.....	453	453	None.
Fresno.....	16	16	None.
San Luis Obispo...	302	302	None.
Total.....	3,727	3,727	3